

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-25. (Canceled)

26. (Currently amended) A method for processing a received signal, the method comprising:

selecting a signal constellation, at a communication device, based on a channel state information and based on a current signal to noise ratio;

receiving a modulated signal at a receiver of the communication device; and

demodulating the modulated signal at a detector module of the communication device by selecting a point from the selected signal constellation corresponding to the modulated signal.

27. (Canceled)

28. (Currently amended) The method of claim 26, wherein the modulated signal is received by multiple receive antennas.

29. (Previously Presented) The method of claim 26, further comprising decoding the demodulated signal using an outer code that includes codes over a plurality of signal matrices across time.

30. (Currently amended) The method of claim 26, further comprising transmitting an indication of [[a]] the current signal to noise ratio from the communication device to a second communication device.

31. (Previously Presented) The method of claim 26, further comprising storing a plurality of signal constellations in a memory of the communication device.

32. (Previously Presented) The method of claim 26, wherein the signal constellation is designed based on a minimum Kullback-Leibler distance between signal constellation points.

33. (Previously Presented) The method of claim 26, wherein demodulating the modulated signal comprises performing maximum likelihood demodulation.

34. (Previously Presented) The method of claim 26, wherein the demodulating the modulated signal comprises performing coherent demodulation.

35. (Currently amended) A network element comprising:
a receiver module corresponding to an antenna, wherein the receiver module is configured to receive a modulated signal from a second network element; and
a detector module configured to select a signal constellation based on a channel state information and based on a current signal to noise ratio and to demodulate the modulated signal by selecting a point from the signal constellation corresponding to the modulated signal.

36. (Canceled)

37. (Previously Presented) The network element of claim 35, further comprising multiple receiver modules corresponding to multiple receive antennas, wherein the multiple receiver modules are configured to receive the modulated signal.

38. (Currently amended) The network element of claim 35, wherein the detector module is further configured to ~~produce a demodulated signal by demodulating the modulated signal; and~~ to decode the demodulated signal using an outer code that includes codes over ~~several~~ a plurality of signal matrices across time.

39. (Currently amended) The network element of claim 35, further comprising a transmit module configured to transmit an indication of ~~[[a]]~~ the current signal to noise ratio.

40. (Previously Presented) The network element of claim 35, further comprising a memory configured to store the signal constellation in a look-up table.

41. (Previously Presented) The network element of claim 35, wherein the signal constellation is designed based on a largest minimum Kullback-Leibler distance between signal constellation points.

42. (Previously Presented) The network element of claim 35, wherein the detector module is further configured to perform maximum likelihood demodulation.

43. (Previously Presented) The network element of claim 35, wherein the detector module is further configured to perform coherent demodulation.

44. (Previously Presented) The network element of claim 35, wherein the network element comprises part of a base station or a mobile station.

45. (Previously Presented) The network element of claim 35, wherein the detector module is configured to receive the channel state information and the signal constellation.

46. (Currently amended) A network element comprising:
means for receiving a modulated signal from a second network element;
means for selecting a signal constellation based on a channel state information and based on a signal to noise ratio; and
means for demodulating the modulated signal by selecting a point from the signal constellation corresponding to the modulated signal.

47. (Currently amended) A detection module comprising:
an input component configured to receive a signal; and
a detection component configured to select a signal constellation based on a channel state information and based on a signal to noise ratio and to demodulate the ~~modulated~~ received signal by selecting a point from the signal constellation corresponding to the ~~modulated~~ received signal.

48. (Currently amended) The detection module of claim 47, wherein the input component is further configured to receive ~~[[a]]~~ the channel state information estimate, ~~[[a]]~~ the signal-to-noise ratio, and the signal constellation.

49. (Currently amended) A computer-readable medium having computer-readable instructions stored thereon that, when executed by a processor, cause a computing device to:
receive a modulated signal;
select a signal constellation based on a channel state information and based on a signal to noise ratio; and
demodulate the modulated signal by selecting a point from the signal constellation corresponding to the modulated signal.

50. (Previously Presented) The computer-readable medium of claim 49, wherein the signal constellation is designed based on a largest minimum Kullback-Leibler distance between signal constellation points.

51. (Currently amended) A method for communicating a signal, the method comprising:
- selecting a point from a signal constellation at a selection module based on a channel state information and based on a current signal to noise ratio;
 - modulating the signal at a modulator using the selected point; and
 - transmitting the modulated signal from a first network element to a second network element.
52. (Canceled)
53. (Currently amended) A network element comprising:
- a selection module configured to select a point from a signal constellation based on a channel state information and based on a current signal to noise ratio;
 - a modulator configured to modulate the signal using the selected point; and
 - a transmitter configured to transmit the modulated signal to a second network element.